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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/533,890

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EXAMINER

XU, LING X

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

07/14/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/533,890	Applicant(s) PERSOONE ET AL.	
	Examiner Ling Xu	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 May 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 7-11 is/are pending in the application.
- 4a) Of the above claim(s) 11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 7-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendments filed on 5/13/2008 have been entered. Claims 5-6 have been cancelled.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-4 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oyama et al. (US 4,996,105) in view of Miyazaki et al. (US 5,419,969).

As stated in the prior Office action, regarding claims 1-3, Oyama discloses a coated transparent substrate wherein the coating is comprised of a first transparent oxide layer formed on the substrate, a second Ag layer formed on the first oxide, a third transparent oxide layer formed on the Ag layer, a fourth Ag layer formed on the third oxide layer, and a fifth transparent oxide layer formed on the Ag layer (column 3, lines 3-15). The transparent oxide layer can be TiO₂ having a refractive index of 2.4 (column 4, lines 40-43). The transparent substrate glass can be sheet glass (column 4, lines 8-17). It is preferred that the coated glass substrate has a visible transmittance of particularly at least 70% (column 5, lines 56-65). As the coated substrate has a visible light transmittance of at least 70%, it would be expected that the coated substrate would exhibit the other optical and/or physical characteristics such as those recited in claims 1-2, absent a showing to the contrary.

Regarding claim 4, example 5 of Oyama demonstrates that the transparent oxide is TiO_2 , (column 7, lines 55-67). As the refractive index of the oxide is 2.4, (column 4, lines 40-43), it would be expected that the layer is mainly rutile, absent a showing to the contrary.

Regarding claims 7-8, example 5 of Oyama also demonstrates that Ag layers have a thickness of about 100 angstroms (10 nm). The metal oxide layers have a thickness of about 350 angstroms (35 nm) and about 700 angstroms (70 nm).

Regarding claim 9, as the coated substrate has a visible light transmittance of at least 70%, it would be expected that Oyama's coated substrate could function as a heat-mirror, absent a showing to the contrary, especially in light of, the coated substrate reflecting 95% at a wavelength of 10 micrometers.

Oyama also discloses that an interlayer (intermediate layer) may be inserted at the interface between adjacent layers (column 5, lines 33-38). The interlayer (intermediate layer) can be added to improve the adhesion of the coating layers (column 5, lines 33-38).

Oyama does not specifically disclose the composition of the interlayer and the protective function of the interlayer.

Miyazaki discloses a multilayered coating formed on a substrate wherein the coating is comprised of alternating layers of oxide films and Ag films (column 2, lines 3-15). Miyazaki also discloses that the Ag layers will exfoliate from the oxide film at the interface of the Ag and oxide films, (column 3, lines 31-40). In order to improve

adhesion at the interface, an interstitial (intermediate) layer is formed of a material such as gold (column 7, lines 45-59).

Oyama and Miyazaki disclose analogous inventions related to coated substrates comprised of alternating layers of oxides and Ag. It would have been obvious to one skilled in the art at the time of invention to modify the interlayer of Oyama with the gold based interstitial layer of Miyazaki in order to limit the exfoliation at the oxide/Ag interface by increasing the adhesion of the layers, (Miyazaki, column 7, lines 33-59), claim 6.

Since the combination of Oyama and Miyazaki discloses the coated substrate with the same structure including the interlayer(intermediate layer) made from the same material such as gold, it would be expected that the same interlayer or intermediate layer disclosed by Oyama and Miyazaki would also has the same protective function as the claimed intermediate layer.

Response to Arguments

3. Applicants' arguments filed on 5/18/08 have been fully considered but they are not persuasive.

Applicants argue that Oyama does not disclose, teach or suggest the "at least one protective intermediate layer comprising gold, said protective intermediate layer being located between a silver containing layer and a metal oxide layer and/or between a metal oxide layer and a silver containing layer" as claimed in claim 1. The "intermediate layer" of Oyama improves the adhesion of coating layers, the protective intermediate layer (as recited in the present application) protects the interface between

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the silver containing layer and the metal oxide layer, protects the silver containing layer from corrosion, and prevents the metal oxide layer and silver layer from intermixing.

Miyazaki also discloses an interstitial layer formed of gold for improving adhesion at an interface.

Applicants' arguments are not persuasive. As stated in the above Office action, the combination of Oyama and Miyazaki teach the coated substrate with the same structure including the interlayer(intermediate layer) made from the same material such as gold, it would be expected that the same interlayer or intermediate layer disclosed by Oyama and Miyazaki would also has the same protective function as the claimed intermediate layer. In other words, the combination of Oyama and Miyazaki would improve the adhesion of the coating layer and would also inherently provide the protective function.

Conclusion

4. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling Xu whose telephone number is 571-272-7414. The examiner can normally be reached on 8:00 am- 4:30 pm, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ling Xu
Primary Examiner
Art Unit 1794

/Ling Xu/
Primary Examiner, Art Unit 1794